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*Hub-and Spoke or else ? Free Trade Agreements in the
« Enlarged » European Union*

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The object of the paper

The object of the paper is:

to estimate **if and how** FTAs among the CEECs exerted a significant impact on intra-European trade reducing the influence of the European Association Agreements (EAs) in shaping the European trade structure as a hub-and-spoke system

What is new in this paper?

- The Perspective:

We analyse trade liberalization strategies in Eastern European countries from a hub-and-spoke perspective

- The methodology :

We estimate a gravity equation using a “system” GMM dynamic panel data approach. This is a new methodology in the context of gravity approach.

The Hub- and Spoke” model

The **hub and spoke model** derives its name from a bicycle wheel, which consists of a number of spokes jutting outward from a central hub. (*Wikipedia*)

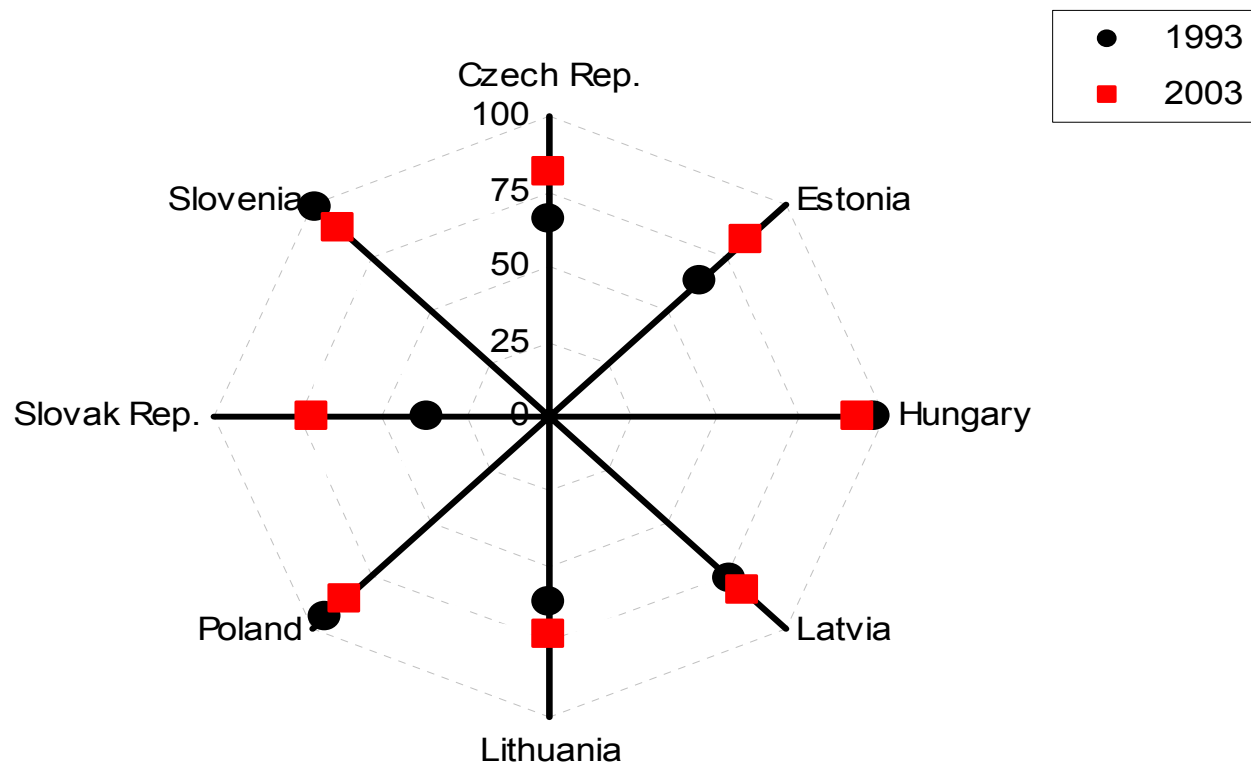
In a trade context, larger and richer countries (hub) would naturally attract as a gravitational pole, flows of goods and services from less developed countries (spokes).

A European hub-and-spoke system (I)

Determinants :

- The opening up to EU of Eastern European economies (i.e. enlargement process)
- The rise in income per capita levels increased CEEC's import and exports
- The composition of trade flows influenced by geographical location (remoteness) and trade facilities practices (preferential agreements)

The European hub-and-spoke system (II)



FTAs in the enlarged European Union (I)

	Date of entry into force			
	EU GSP	CEFTA	BFTA	EA
Czech Rep.	1991	1-Mar-93		1-Mar-92
Estonia	1992		1-Apr-94	1-Jan-95
Hungary	1990	1-Mar-93		1-Mar-92
Latvia	1992		1-Apr-94	1-Jan-95
Lithuania	1992		1-Apr-94	1-Jan-95
Poland	1990	1-Mar-93		1-Mar-92
Slovak Rep.	1991	1-Mar-93		1-Mar-92
Slovenia	1980*	1-Jan-96		1-Jan-97

FTAs in the enlarged European Union (II)

- The features found in the trading pattern of CEECs in the last decade suggest that the share of exports to EU-15 was, in the first half of the 1990s, relatively high, partly because the reduction in trade barriers has already taken place.
- Following the demise of central planning and the associated collapse of the CMEA, trade linkages among CEECs contracted dramatically and still remain very weak.
- It is a very difficult task to identify with any precision the extent to which preferential access to EU markets was responsible for reorientation in geographic patterns of trade of CEEC.

Equation and empirical strategy (I)

The estimation methodology:

“system” GMM dynamic panel data est. (Arellano and Bover 1995).

Advantages:

- Consistent estimates in short samples;
- In presence of highly persistence time series, more efficient estimates than GMM First Difference (Arellano and Bond (1995));
- Possibility to include in the estimate time-invariant regressors

Equation and empirical strategy (II)

- Dep. Variables: bilateral exports flows
- Exporting countries: each CEECs (8 acceding countries)
- Importing countries: each EU15+each CEECs 8
- Time span: 1994-2002

Equation and empirical strategy (III)

- **The functional form:**
- 1) Controls for dynamics. (Arellano and Bover (1995); Blundell and Bond (1998)).
- 2) Standard gravity variables.
- 3) Dummy variables to test the effects of FTAs on bilateral flows between EU15-CEECs and CEECs themselves
- 4) Controls for heterogeneity and time trends. (Baltagi Egger and Pfaffermayr, (2003)) ((Bun and Klaassen (2002))

Equation and empirical strategy (IV)

The estimated equation is:

$$\text{Ln} (\text{Exp}_{ijt}) =$$

$$1) \text{ b1ln}(\text{Exp}_{ij(t-n)}) +$$

$$2) \text{ b2 ln}(\text{SumGDP}_{ijt}) + \text{ b3 ln}(\text{Dist}_{ij}) + \text{ b4 ln}(\text{SIMIL}_{ijt}) +$$

$$3) \text{ b5 FTAP}_{ijt} + \text{ b6 FTAEU}_{ijt} +$$

$$4) \text{ b6 a}_i + \text{ b7 b}_j + \text{ b8 t}_{ij}$$

Estimate of CEECs bilateral exports, 1994-2002

	I	II	III	IV
$\ln(Exp_{ij(t-1)})$	0.30* (2.33)	0.34** (2.62)	0.30** (2.53)	0.31** (2.64)
$\ln(SumGDP_{ij})$	0.4* (2.37)	0.40 * (2.34)	0.51** (2.72)	0.51** (2.73)
$\ln(DIST_{ij})$	-1.46*** (5.4)	-1.34 *** (5.24)	-1.46*** (5.93)	-1.37*** (5.78)
$\ln(SIMIL_{ij})$	0.49 ** (2.81)	0.43** (2.57)	0.57*** (3.24)	0.53** (3.07)
$FTAP_{ijt}$		0.16* (2.27)		0.15* (2.24)
$FTAEU_{ijt}$			-0.12 (1.66)	-0.11 (1.49)
Sargan test	$c^2(46)$ =38.65 $p > c^2 = 0.77$	$c^2(46)$ =42.09 $p > c^2 = 0.64$	$c^2(46)$ =36.55 $p > c^2 = 0.84$	$c^2(46)$ =39.53 $p > c^2 = 0.74$
Arellano Bond test AR (1)	$z = -2.93$ $P > z = 0.003$	$z = -3.25$ $P > z = 0.001$	$z = -3.21$ $P > z = 0.001$	$z = -3.35$ $P > z = 0.001$
Arellano Bond test AR (2)	$z = 0.43$ $P > z = 0.664$	$z = 0.41$ $P > z = 0.679$	$z = 0.41$ $P > z = 0.681$	$z = 0.37$ $P > z = 0.712$

Estimates results

Gravity standard variables:

- Mass and distance, signs and coefficient magnitude confirmed
- A positive sign of SIMIL (Linder's hypothesis)

Dynamics

- Lagged dep. var. statistically significant with a 1 period lag, magnitude a little bit lower than in other findings (referred to more advanced countries)

FTA dummy variables

- FTA-intra CEECs. The coefficients show that being part of a free trade agreement among CEECs countries, compared to not being part of it, increases bilateral trade by around 16 percent.

Concluding remarks and policy implications (I)

- FTAs enhanced bilateral export flows between the spokes and not between the hub and the spokes
- insignificant impact on export flows of EAs: trade between CEECs and EU15 was already intense because reduction of trade barriers had already taken place

Concluding remarks and policy implications (II)

Our findings seems to confirm some stylised facts:

- CMEA period: trade between the CEECs were not driven by economic factors and were not as intense as they should have been.
- Integration process with the EU15: the hub had a gravitational pole, trade flow were redirected towards the EU market.
- EAs are not reinforcing the hub-and-spoke structure of intra-EU trade.
- FTAs among spokes (CEFTA and BFTA) limited the reinforcement of a hub-and-spoke relationship between CEECs and EU.

Concluding remarks and policy implications (III)

South-eastern European Countries as well as the Southern Mediterranean Countries should move towards a regional free-trade area

- to promote intra-regional trade and
- to prevent the emergence of a hub-and-spoke structure in regional trade flows.